

Bellwork: 4/26/13

Perform the indicated operation:

1)  $(6-7\sqrt{5}) - (-3+5\sqrt{5})$

$6 - -3 \quad -7\sqrt{5} - 5\sqrt{5}$

$9 - 12\sqrt{5}$

2)  $(9+2\sqrt{48}) + (4-3\sqrt{75})$

$\begin{matrix} 16 & 3 \\ \swarrow & \searrow \\ 4 & 4 \end{matrix} \quad \begin{matrix} 25 & 3 \\ \swarrow & \searrow \\ 5 & 5 \end{matrix}$

$(9+8\sqrt{3}) + (4-15\sqrt{3})$

$9+4 \quad 8\sqrt{3}-15\sqrt{3}$

$13 - 7\sqrt{3}$

13)  $3\sqrt{8} + 3\sqrt{2}$

14)  $-3\sqrt{6} + 3\sqrt{6}$

15)  $-3\sqrt{20} - \sqrt{5}$

16)  $2\sqrt{45} - 2\sqrt{5}$

17)  $3\sqrt{18} - 2\sqrt{2}$

$-3\sqrt{2} - 2\sqrt{10}$

$-9\sqrt{2} + 6\sqrt{2} - 2\sqrt{10}$

18)  $-3\sqrt{18} + 3\sqrt{8} - \sqrt{24}$

$\begin{matrix} 9 & 2 \\ \swarrow & \searrow \\ 3 & 3 \end{matrix} \quad \begin{matrix} 4 & 2 \\ \swarrow & \searrow \\ 2 & 2 \end{matrix} \quad \begin{matrix} 4 & 6 \\ \swarrow & \searrow \\ 2 & 3 \end{matrix}$

19)  $3\sqrt{18} + 3\sqrt{12} + 2\sqrt{27}$

20)  $-3\sqrt{5} - \sqrt{6} - \sqrt{5}$

$$21) -3\sqrt{2} + 3\sqrt{20} - 3\sqrt{8}$$

$$22) -3\sqrt{3} - \sqrt{8} - 3\sqrt{3}$$

$$23) -2\sqrt{20} + 2\sqrt{18} - 2\sqrt{5}$$

$$24) 2\sqrt{18} - 2\sqrt{12} + 2\sqrt{18}$$

$$25) -\sqrt{45} + 2\sqrt{5} - \sqrt{20} - 2\sqrt{6}$$

$$26) 2\sqrt{20} - \sqrt{20} + 3\sqrt{20} - 2\sqrt{45}$$

$$27) -3\sqrt{45} + 2\sqrt{12} + 3\sqrt{6} - 3\sqrt{20}$$

$$\begin{aligned} & \boxed{-3\sqrt{3} - 5\sqrt{5}} \\ & -3\sqrt{3} - 9\sqrt{5} - 2\sqrt{5} + 6\sqrt{5} \\ 28) & -\sqrt{27} - 3\sqrt{45} - \sqrt{20} + 2\sqrt{45} \\ & \begin{array}{cccc} \sqrt{27} & \sqrt{45} & \sqrt{45} & \sqrt{45} \\ \textcircled{33} & \textcircled{33} & \textcircled{22} & \textcircled{33} \end{array} \end{aligned}$$

Section : 6.3 Cont...

Obj: To multiply radical expressions

Multiplying Radicals:

FOIL! FOIL! FOIL!

$$\begin{aligned} 6 \cdot 4\sqrt{2} &= 24\sqrt{2} \\ 6\sqrt{3} \cdot 4\sqrt{2} &= 24\sqrt{6} \\ 6 \cdot \sqrt{3} \cdot 4\sqrt{3} &= 24\sqrt{9} \\ &= 24 \cdot 3 = \boxed{72} \end{aligned}$$

$$1.) \boxed{-3+5\sqrt{2}}(4+2\sqrt{2})$$

$$\begin{array}{cccc} F & O & I & L \\ -3 \cdot 4 & -3 \cdot 2\sqrt{2} & 5\sqrt{2} \cdot 4 & 5\sqrt{2} \cdot 2\sqrt{2} \\ -12 & -6\sqrt{2} & +20\sqrt{2} & +10\sqrt{4} \\ & & & 10(2) \\ -12 & -6\sqrt{2} & +20\sqrt{2} & +20 \end{array}$$

$$3.) (2+3\sqrt{3})^2$$

$$\begin{aligned} & \boxed{8+14\sqrt{3}} \\ & (2+3\sqrt{3})(2+3\sqrt{3}) \\ & 4+6\sqrt{3}+6\sqrt{3}+9\sqrt{9} \\ & 4+6\sqrt{3}+6\sqrt{3}+27 \\ & \boxed{31+12\sqrt{3}} \end{aligned}$$

$$2.) (4-\sqrt{3})(2\sqrt{3}+5) - \sqrt{3} \cdot 2\sqrt{3}$$

$$\begin{array}{cccc} F & O & I & L \\ 8\sqrt{3} + 20 & -2\sqrt{9} & -5\sqrt{3} & \\ & -2(3) & & \\ 8\sqrt{3} + 20 & -6 & -5\sqrt{3} & \\ & \boxed{14+3\sqrt{3}} & & \end{array}$$

$$4.) (3-\sqrt{2})(3\sqrt{2}+1)$$

$$\begin{aligned} & 9\sqrt{2} + 3 - 3\sqrt{4} - \sqrt{2} \\ & 9\sqrt{2} + 3 - 6 - \sqrt{2} \\ & \boxed{-3+8\sqrt{2}} \end{aligned}$$

Try these:

5.)  $(4+2\sqrt{3})(1-3\sqrt{2})$

$$\boxed{4 - 12\sqrt{2} + 2\sqrt{3} - 6\sqrt{6}}$$

6.  $(2-3\sqrt{7})^2 = \boxed{67 - 12\sqrt{7}}$

7)  $(3+2\sqrt{2})(3-2\sqrt{2}) = \boxed{1}$        $(4+i)(4-i)$

$$9 - \cancel{6\sqrt{2}} + \cancel{6\sqrt{2}} - 4\sqrt{4}$$
$$-4(2)$$

$$9 - 8$$
$$\boxed{1}$$

Lab Assignment:

Unit 3 Keystone Packet  
pgs 61-70

Homework:

pg 14 # 19-33

